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AUTHOR Rubin, Ann D.

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ABSTRACT

Children's well-developed oral language skills obviously facilitate their reading and learning to read. In contrast to a traditional position which contends that reading comprehension equals oral comprehension skills plus decoding, this paper claims that a child must learn (and, perhaps, unlearn) many more skills in the transition from oral comprehension to reading. In order to further delineate these skills, a dimensionalized space within which language experiences can be analyzed has been developed. The taxonomy implied by this space separates differences among language experiences into two major categories: those related to the medium or communicative channel and those related to the message itself. Comparing a child's oral langauge experiences (i.e., conversations) and the "goal" reading experience along these dimensions demonstrates clearly that the cognitive leaps we expect children to make in learning to read are enormous. Several consequences of this taxonomy for research and teaching are considered. As an example of the type of research question such an analysis might provoke, problems children might have in comprehending deictic terms (words whose meanings are sensitive to the time, place, and context of the utterance) in text are discussed. (Author)

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CENTER FOR THE STUDY OF READING

Technical Report No. 35

A THEORETICAL TAXONOMY OF THE DIFFERENCES BETWEEN ORAL AND WRITTEN LANGUAGE

Ann D. Rubin

Bolt Beranek and Newman Inc.

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University of Illinois
at Urbana-Champaign
51 Gerty Drive
Champaign, Illinois 61820

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Bolt Beranek and Newman Inc.
50 Moulton Street
Cambridge, Massachusetts 02138

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1. Introduction

Children come to the task of reading with a set of well-developed oral language comprehension skills. This linguistic skill, remarkably obtained in just a few years, obviously facilitates reading and learning to read. One view is that oral and written language comprehension represent essentially the same process; reading a passage simply involves decoding the orthographic symbols to a phonemic representation, then comprehending that as if it were speech. Huey's [1908] often-cited statement expresses this view: "The child comes to his first reader with his habits of spoken language fairly well formed and these habits grow more deeply set with every year. His meanings inhere in this spoken language and belong but secondarily to the printed symbols." (p. 123) An alternative point of view is that, while the two processes share significant subparts, they also differ in crucial ways. For example, Kolers [1970] contends that "the questions of interest to the student of reading are not whether all [symbol-sound] correspondences can be characterized by rules, for they can, but whether reading is merely their application. Here the answer is decisively negative." (p. 116)

Advocates of the first position contend that reading comprehension = oral comprehension skills + decoding. Those who espouse the second claim that the equation contains many more terms and that some of the coefficients might even be negative, indicating skills which must be unlearned in the transition from oral comprehension to reading.

In this chapter, I emphasize and explore the differences among various forms of oral and written language, rather than their similarities. The discussion is based on the claim that it is misleading to compare the broad class "oral language" with all "written language," since differences within these classes can be much greater than any general distinction between them. In fact, the simple oral vs. written dichotomy on which much research has focussed corresponds to only one of several dimensions of language experience which I develop here. Although it is clear that the necessity for visual decoding is a difference between children's oral language and reading comprehension, I contend that it is but one of a great many distinctions, all of which may well present stumbling-blocks for children learning to read. Recognizing the multi-faceted manner in which a child's language skills must develop, we can see that the cognitive leaps we expect children to make are enormous and can perhaps be broken down into more manageable steps.

The major portion of this paper introduces a taxonomy of the differences between children's typical oral language experiences and the experience of reading a book. Sections 2.1 through 2.3 explore these distinctions and section 2.4 considers some implications of this taxonomy for teaching reading and doing research in reading comprehension. Section 3.1 discusses from the perspective of the taxonomy developed in this paper some past experimental work which purported to investigate the "same process" hypothesis exemplified by Huey's statement above. In

addition to the problems identified in section 3.2, the major criticism of this research is that it ignores the differences I consider most crucial to a child's transition from listening to reading comprehension. As an example of an alternative type of research question which the taxonomy developed here might provoke, section 4 explores the difficulties deictic words whose meanings are sensitive to the time, place and context of the utterance may present to children when these terms are used in written text. The discussion of deixis in section 4 illustrates the potential complexity of comparing text and speech according to the taxonomy presented here.

2. A Theoretical Taxonomy of the Differences Between Oral and Written Language

If we wish to truly understand the contribution of children's oral language skills to their learning to comprehend what they read, we must carefully specify the conceptual differences between their earlier language experiences and the new one they are trying to master. The following taxonomy attempts to go far beyond the traditional emphasis on decoding skils, and views the differences as much more comprehensive. It should be viewed primarily as a specification of the processes children must learn (and unlearn) to become competent reading comprehenders, but is also useful as a framework for specifying which variables are really being tested in listening/reading experiments such as those described below, and as a suggestion for teaching the totality of reading comprehension by making progress along one dimension at a time.

A child's oral language experiences may be described as interactive conversations in which the child participates as both speaker and listener. All the participants share a spatial, temporal and situational context and their verbal communication is augmented by intonation, facial expression and gestures. I have divided the differences between this situation and that of a child reading a story into two large sub-categories: those having to do with the communicative medium and those dealing with the message; each of these subcategories is further divided into dimensions. I will describe these in detail in the following sections. Since the emphasis here is on the consequences of these distinctions for a child learning to read, I will also attempt to indicate what kinds of modifications must happen to a child's comprehension processes in the complex transition to reading comprehension. While I have chosen to designate the goal language experience in this analysis as "reading a story," it is important to realize that there are other language experiences which differ even more from children's conversations, e.g. reading a textbook or technical paper. Because the kinds of texts to which children are first and most frequently exposed are stories, I will concentrate on these first and discuss differences between stories and textbooks in the section on message-related dimensions.

2.1 Medium-Related Dimensions.

I have formulated seven dimensions along which the communicative medium of a language experience can be placed. The medium here is expressed in experiential terms, and does not

represent just the vehicle for the message; for example, the contrast is made between being in a conversation and watching a play, rather than between a conversation and a play. If we were to think of a space defined in terms of these seven dimensions, a child's oral language experience, as described above, would lie on the opposite end of a long diagonal from reading stories, with one point being (0,0,0,0,0,0,0), the other (1,1,1,1,1,1,1). For simplicity, I will treat these dimensions here as two-valued, although it is clear that some of them do not divide language experiences neatly into two parts; a further refinement of the theory would be to consider intermediate values on some dimensions.

In any such dimensionalization, it is often unclear when a dimension should be listed separately and when it should be combined with some other related dimension with which it may occasionally covary. I have, at least informally, used the following criterion for identifying a dimension: if I could think of a minimal pair, that is, two language experiences which differed in terms of medium only along the dimension in question, that dimension was considered to be independent and was therefore included in the list.

The medium related dimensions are: modality, interaction, involvement, spatial commonality, temporal commonality, concreteness of referents, and separability of characters. Further descriptions of them are as follows:

1. MODALITY - is the message written or spoken? This dimension is the one on which most research on the relationship between listening and reading has focused. In fact, it has mainly concentrated on only one aspect of this distinction: the added necessity of visual decoding in reading. Even in this single dimension, however, there are other differences which impinge substantially on the processing demands of the comprehension task. These are briefly reviewed here; a more extensive discussion of the components of modality may be found in Schallert, Kleiman and Rubin [1977].

Spoken language has as one of its most salient aspects the use of stress, intonation, and other prosodic features. Temporal characteristics of speech such as pauses and changes in speed often provide clues for the chunking of words into larger constituents. In general, pauses and breaths occur at syntactic boundaries (Henderson, Goldman-Eisler and Skarbek [1965, 1966]). Similarly, a more quickly spoken set of words often indicates an appositive phrase or something which is not germane to the top-level structure of the sentence. In a relevant experiment, Friedman and Johnson (as reported in Sticht [1972]) found that pauses at phrase boundaries in speech increased its comprehensibility. We rely on stress in oral language as an indicator of such discourse organizing topics as given vs. new. Compare the following two sentences for example:

I sent <u>Adam</u> the book.

I sent Adam <u>the book</u>.

In the first, the book has already been mentioned (is given), while the information that it was sent, specifically, to Adam is new. The situation is reversed in the second sentence.

In addition, stress on pronouns helps to disambiguate their referent as in the familiar:

John hit Peter and then Mary hit him.

vs. John hit Peter and then Mary hit him.

In the first sentence, the referent of "him" is definitely "Peter," while in the second it is "John." Intonation, yet another feature found solely in speech, is often used as an indication of the illocutionary force of an utterance. For example, "It's cold in here" could be a statement or a question, depending on the intonation pattern.

These prosodic features are a great help for everyone - and especially children - in understanding speech as they facilitate the detection of syntactic and discourse structure. (See Adams [1978] for further discussion). The transition to text requires the development of alternate strategies to compensate for the disappearance of these features.

Text does have some compensatory aspects. A partial analogue of many prosodic features is punctuation. While our limited set of punctuation marks does not reflect all the nuances possible with speech, it frequently indicates illocutionary force (. ? !), pauses (;), lists (, : ;) and related statements (;), among others. In contrast with speech, segmentation of the message into words and sentences is concretely indicated in written text and is

not a task which must be performed by the reader. In addition, certain devices which are used solely in text can help specify the larger structure of the message. The demarcation of paragraphs is such an organizational aid. Textual devices such as underlining and italicizing may be used to emphasize or contrast words and phrases. It is even possible that other languages or other typographies have employed different textual features; a study of the history of typography might shed some light on the oral-written transition process from a different point of view. Effective reading involves the recognition of the function of these aids and the development of processes to take the best advantage of them.

Another characteristic of text which can be an asset in its comprehension is its permanence. Readers can use this fact by looking back over passages they have previously read, re-reading a sentence which was misparsed the first time around or re-reading an entire paragraph whose point became clear only at the last sentence. Effective readers often glance ahead at the next few sentences or skim chapter and section headings. A major strategy a child must develop in making the transition from oral to written language is a method for using the permanence of text to compensate for some of its differences from speech. One such strategy, for example, is to keep some high-level structure of the text in mind to facilitate looking back to check a specific point or answer a specific question; in an interactive oral language situation, people more commonly just ask for clarification.

2. INTERACTION - is the hearer/listener able to interact with the speaker/writer? Clearly, in a conversation, each participant has a chance to speak and often uses this opportunity to indicate that he or she has not understood the speaker. Thus, in a conversation which is "working" the hearer can verify his or her hypotheses quickly, making the maintenance of competing hypotheses less necessary.

Being in a conversation also requires the listener to make an active attempt to understand what is being said in order to respond appropriately. In non-interactive media such as books and TV this impetus is absent. Being able to participate in this way requires knowledge of the rules by which conversations are conducted; Grice [1957] and Searle [1969] have codified some of the assumptions which underlie conversational interactions. Being able to actively participate also implies having an effect on the course of a conversation. Keenan and Schieffelin [1976] have represented the establishment of discourse topic as a dynamic process which includes feedback from both the speaker and the hearer. Participatory language experiences are, in addition, highly individualized; each participant has some model of the other's beliefs and knowledge and composes utterances taking this model into account. Thus, the language with which a child comes into contact in conversations is more tailored to his or her knowledge than the language in a multi-recipient object like a book could be.

3. INVOLVEMENT - is the communication directed to the reader/listener? The inclusion of this dimension reflects the fact that certain language experiences are directed toward the reader/listener, while in others, he or she is essentially "eavesdropping." One clue to locating a language experience along this dimension is the use of second person pronouns. An "involving" communication will use "you" to refer to the reader/listener, sometimes even in the imperative. If a "noninvolving" communication contains "you" at all, the referent will be a character in the story, or a generalized person ("You never know what's going to happen next."). Involvement in a communication act usually implies that the writer/speaker knows who the reader/listener is; consistent with this implication is the fact that most written communications of this sort are derived from oral situations (e.g. letters).

4. SPATIAL COMMONALITY - do the speaker and listener (reader and writer) share a spatial context? This dimension really comprises two different questions. The first might be phrased: Can the participants see one another? The second: Can the participants use the same spatial deictic terms because they are in the same place?

The first question is primarily one of extra-linguistic communication. Gestures, facial expressions and pointing can all be used to facilitate communication. A nod of the head may denote agreement; a puzzled look may communicate a lack of understanding,

causing the speaker to restructure the utterance. Pointing may aid in specifying referents for pronouns or noun phrases such as "that dog over there." Keenan and Schieffelin [1976] cite the following example of two 34-month-old children eating dinner:

David: (looking at his bowl of food) what's zis?

Toby: Kamoniz

David: no macaroniz. Sketiz.

In this case, David's eye movements were necessary for Toby to understand the referent of "zis." A developmental movement away from this early dependence on extra-linguistic communication has been noted by deLaguna [1927]: "The evolution of language is characterized by a progressive freeing of speech from dependence on the perceived conditions under which it is uttered and heard, and from the behavior which accompanies it." (p. 107).

The second aspect of spatial commonality has to do with the use of deictic words such as "here," "there," "come," "go," etc. (see section 4 below for a definition and discussion of deixis). If the two participants are in the same place, they can understand such words without translating them to account for the other person being in a different place. (Of course, such words as "right" and "left" must always be interpreted relative to each person's <u>own</u> position.) The permanence of written language and the existence of modern telecommunications have created situations in which the two participants can be separated in space, thus making it necessary for the listener to interpret spatial deictic terms in the speaker's context.

5. TEMPORAL COMMONALITY - do the participants share a temporal context? This again is a deictic issue involving the use of such words as "now," "today," "last Sunday" and verb tense markers. The correct interpretation of such words when the participants are separated in time requires the reader/listener to take the point of view of the speaker/writer. A child's oral language experience does not often require this ability to switch the temporal context of utterances. Although it is certainly possible for a mother to address the following remark to her child: "Remember I told you yesterday, 'You can go out to play tomorrow.'", it appears that this type of demand for temporal context-switching is seldom imposed on a child in oral conversations.

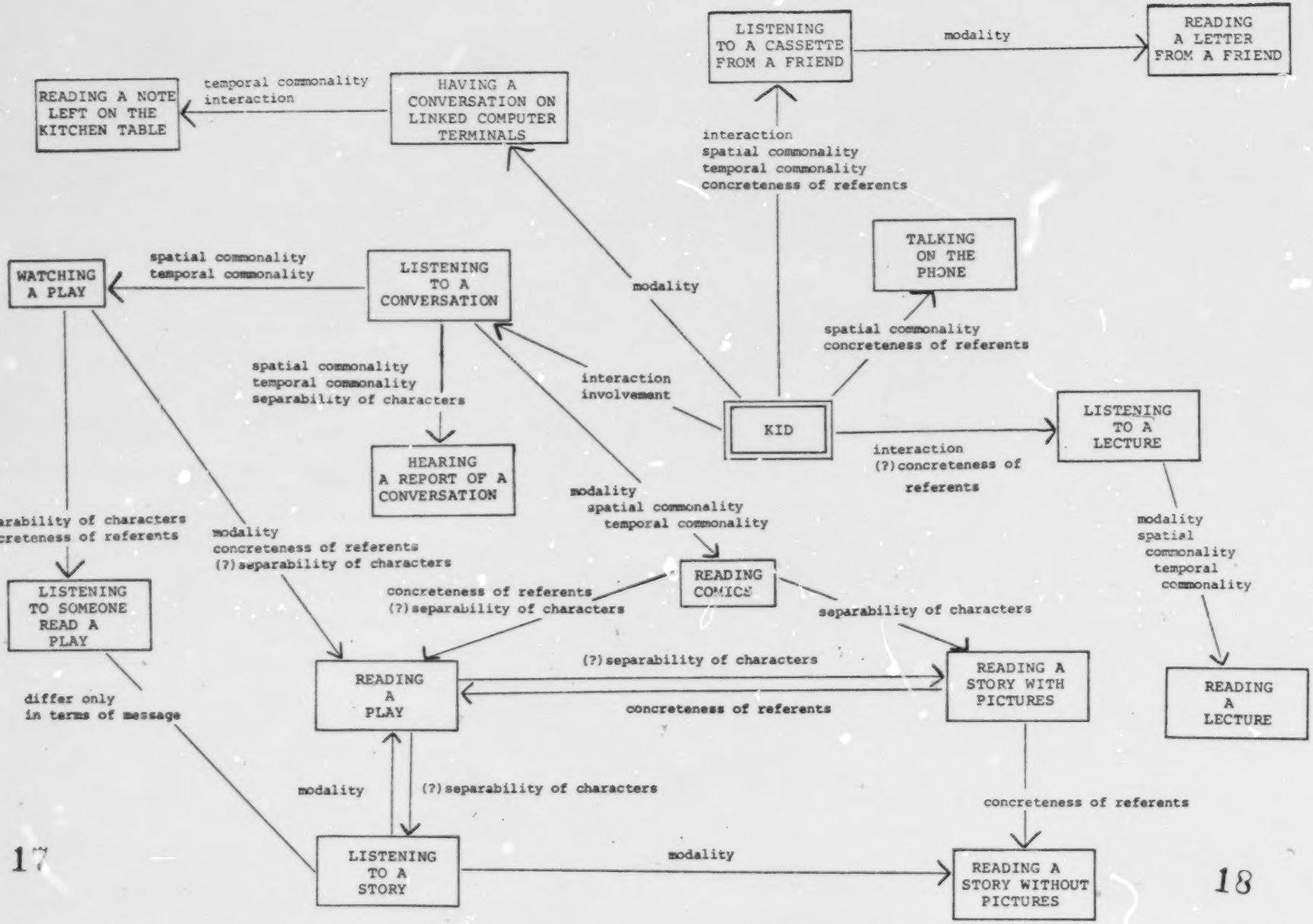
6. CONCRETENESS OF REFERENTS - are the objects and events referred to visually present? Early conversations deal almost exclusively with concrete objects which a child can see: Mommy, Daddy, clothes, food - or objects which the child has at least seen previously and which therefore have some concrete reality to him or her: Grandpa's dog, friend Jackie, carrots we had for dinner last night. In reading or listening to stories, a child is often required to make up an object or event given only an incomplete, verbal description, a process which may take additional cognitive sophistication. The child may also have to integrate several partial descriptions of the same object and remember the composite description without the aid of an external referent.

7. SEPARABILITY OF CHARACTERS - is the distinction between different people's statements and points of view clearly indicated? In a normal conversation, such distinctions are obvious, as each person makes his or her own statements; each point of view has a physical "anchor." Even so, for a young child, the parallel maintenance of several distinct points of view may be confusing. In a book this problem is compounded, as the child must not only "construct" the individuals involved (see concreteness of referents, above), but must parcel out comments, feelings and motivations to each of them on the basis of more subtle clues: punctuation, paragraph structure and inferences based on some consistent model of each of the characters.

2.2 Points in the Medium Space

Although these seven dimensions have been identified and discussed by contrasting two extremes - children's oral conversations and reading a story - there are many language experiences which lie between the two. A dimensionalization like the one presented here defines a space within which language experiences may be compared and inspires a search for the uninstantiated possibilities. We can think of each language experience to be described as a point in 7-dimensional space. At first the space appears to be only sparsely filled, but, in fact, we can come up with quite a few intermediate points by teasing apart the dimensions we have listed above.

Figure 1 illustrates the relationships among several different experiences, presented as labelled rectangles. Lines


LISTENING TO A CASSETTE FROM A FRIEND
modality
READING A LETTER FROM A FRIEND
READING A NOTE LEFT ON THE KITCHEN TABLE
temporal commonality interaction
HAVING A CONVERSATION ON LINKED COMPUTER TERMINALS
interaction spatial commonality temporal commonality concreteness of referents
TALKING ON THE PHONE
WATCHING A PLAY
spatial commonality temporal commonality
LISTENING TO A CONVERSATION
modality
spatial commonality concreteness of referents
spatial commonality temporal commonality separability of characters
interaction involvement
KID
LISTENING TO A LECTURE
interaction (?)concreteness of referents
HEARING A REPORT OF A CONVERSATION
modality spatial commonality temporal commonality
separability of characters concreteness of referents
modality concreteness of referents (?)separability of characters
modality spatial commonality temporal commonality
READING COMICS
concreteness of referents (?)separability of characters
separability of characters
LISTENING TO SOMEONE READ A PLAY
(?)separability of characters
READING A PLAY
READING A STORY WITH PICTURES
concreteness of referents
READING A LECTURE
differ only in terms of message
modality
(?)separability of characters
concreteness of referents
LISTENING TO A STORY
modality
READING A STORY WITHOUT PICTURES

17 18

Figure 1. Differences among language experiences as communicative media. The box labelled "KID" represents a child's typical oral language experience, while the other boxes show experiences that differ along one or more dimensions.

connecting the rectangles are labelled with the dimension(s) along which the two experiences diverge. The rectangle in the center of the page, labelled KID, represents a child's language experiences as described above; the goal of early reading teaching - the ability to read a story - is near the bottom of the figure. Arrowheads indicate a movement away from a child's normal oral language experiences toward the other end of the space - reading a story. Notice that in some cases two opposing arrows connect two adjacent rectangles. This is an indication that one of the two is closer to oral conversations along one dimension, while the other is closer along another.

The complexity of the figure should immediately suggest that there are many more conceptual transitions involved between these two language experiences than an emphasis on decoding would imply. This figure attempts to pinpoint these transitions, focusing on the divergent cognitive demands different language experiences impose on a child. For example, according to this analysis, a child talking on the telephone faces the potential problem of incorrectly interpreting words such as "here" because of the spatial context shift necessary to interpret the word; there is, in fact, anecdotal evidence that this confusion occurs. An additional hindrance implied by the "spatial commonality" dimension is the lack of extralinguistic communication, made impossible by the limited communicative medium. Objects referred to in the conversation which are in the speaker's spatial context are probably not immediately visible or accessible to the child.

For a child who relies on these aids to comprehend speech, their absence may necessitate additional processing and/or lead to comprehension difficulties. The point is that this additional processing is precisely the type which is necessary in reading stories as well. Although there is no suggestion that a child must pass through all or any of the intermediate stages in learning to read, language experiences between the two extremes may be useful in teaching reading and diagnosing children's reading problems.

While an attempt has been made to keep these medium-related dimensions binary, some language experiences clearly lie midway on some dimension rather than at one end or the other. This is indicated in the figure by question marks in front of dimension names; in these instances, the two adjacent rectangles may differ only marginally along that dimension. For example, the clues to separating characters' points of view are somewhat clearer in reading a play than in reading a story (the demarcation of characters' lines helps in this respect), but are less obvious than in watching a play.

Many children's most common source of language input - watching television - is not included in this figure since, in many respects, it cuts across the distinctions made here. A child can listen to a lecture, conversation or story or watch a play on television. As both a visual and an auditory medium, television can combine characteristics of both modalities by presenting material to be read as well as listened to (although except for

the "Sesame Street" family of programs, it seldom uses any written text.) On the other hand, television is not an interactive medium, as are everyday conversations, so it lacks the individual tailoring which is an integral part of such communicative episodes and places few demands on the child to respond in an appropriate way. In this sense, TV may be considered a passive rather than an active medium in terms of the obligations it imposes on the child.

Finally, it is appropriate to consider this dimensionalization as a departure point for analyzing language experiences, rather than as the final product. For one thing, most communicative acts are not "pure"; they are instead mixtures of several media. Many language experiences change in the course of time, wandering from point to point in the medium space. For example, a common occurrence for a child might be to listen to and watch a conversation, occasionally becoming an active participant. A parent might carry on a direct conversation with a child at various points during reading a story aloud. The designation of medium can also become more complicated when communication originally composed for one situation is delivered in another. Reading a transcript of a lecture is one example of a language experience which is more difficult to classify in terms of medium. Most important, as mentioned above, there is an entire other set of dimensions along which communicative acts vary and which exhibits marked contrasts between conversations and stories: the message itself.

2.3 Message-Related Dimensions

The medium dimensions detailed above capture only some of the differences between a child's typical oral language experiences and typical school reading experiences. There are also wide gaps between the two in terms of the topic of the communication, its structure and its function. I have grouped these three aspects of linguistic communication in the category message: intuitively, the "meat" of the interaction, in contrast to its communicative channel. Changes along message dimensions necessitate developments in a child's language comprehension abilities which must occur in parallel with the emergence of skills to effectively handle the medium-related differences discussed above. Unlike those, message dimensions cannot be considered two-valued, or designations of characteristics of which communicative acts can be said to have more or less. When two messages are compared in terms of structure, for example, the results will be that they have different structures, rather than that one has more or less structure than the other.

Although medium and message dimensions are examined separately, they are far from independent aspects of communication. Certain medium characteristics are most appropriate for particular types of messages and in some instances, the choice of medium essentially determines some aspects of the message. A potentially interactive medium will tend to push the structure of the message toward that of a conversation. Parents could deliver expository lectures to their

children, but few do (thank goodness); it would be a poor use of face-to-face communication. Similarly, the syntax of oral interactive language is generally "ungrammatical" because of the characteristics of the communicative medium. Stated another way, it is not really possible to randomly choose values on each of the medium and message dimensions and be sure of finding a natural language experience which fits that set of choices. Yet even if some of the message distinctions singled out below are consequences of medium differences, looking at them separately may enable us to discover which ones are the most critical roadblocks for children learning to read. In the discussion below of various message dimensions, I will first define the dimension, then indicate the effect a choice of medium has on the location of a language experience along this dimension, then contrast children's typical oral language experiences with reading with respect to this dimension.

Some attempts have been made to classify oral and written language <u>per se</u> along these dimensions. For example, Danks [1974] reports that other experimenters found college sophomores' oral productions, when compared to written ones on the same topic, to contain longer and more difficult words and more verbs. It is misleading, however, to consider this result to suggest judgments about anything more general than college sophomores talking and writing about a particular topic in a particular situation. Surely their oral productions in a conversation about their social lives would differ significantly from the oral productions in

these experiments. In addition, this comparison is simply not relevant to children learning to read for their typical oral and reading experiences do not match those in the experiment along a number of other dimensions. It is important to keep this caution in mind in reading the sections which follow.

Structure exists at many different levels of a message: word, sentence, paragraph, and the entire message, to name the most obvious. At the word level, the question of structure is really one of vocabulary. Words have been rated with respect to difficulty and abstractness; for any individual child, however, the crucial issue may be familiarity -- whether or not they have heard, read or used the word before. Because children are participants in the conversations which constitute the major portion of their linguistic experience, the words they hear tend to be familiar to them. Clearly, a typical children's book will contain words which are not familiar to a child from everyday conversation and more sophisticated written material such as textbooks may be densely populated with unknown words. This makes it necessary for the child not only to learn new words, but also to develop strategies for hypothesizing about unfamiliar words when he or she encounters them in reading.

At the sentence level, we note syntactic differences among language experiences. The structure of individual sentences may be more or less complex; on the other hand, sentences may not even be "grammatical" or complete. In interactive communications, incomplete sentences frequently occur as answers to questions

("Where did you see her?" "Canoeing on the Charles."). Because it is produced on the fly, speech tends to wander off into run-on sentences and baroque structures. Redundancy and repetitions are common compensations for the non-permanence of speech. Anyone who has transcribed a conversation can vouch for the looseness of the syntax. The following example is part of a 10-year old's oral response to questions about a story she had just read: "I don't know, I think it was some book like that she wasn't allowed to read as though it were a really Christian home or something and you weren't allowed to read a book about, I don't know, dirty or something." Another example of the lack of formality in spoken language is Allen's [1966] observation that perfect tenses [e.g. "had been closed"] are often replaced by simple tenses [e.g. "was closed"] in conversation. Thus, because children's experience is with oral, interactive conversations, they may have to learn new syntactic rules for reading. Even if the syntactic structures are the same, however, speech provides additional clues to the discovery of syntactic structures, as explained in the description of modality differences above; this presents an additional new demand to children.

Larger-than-sentence-level structure has not been investigated until more recently and, as a consequence, has been less clearly defined. Conversational structure is characterized by utterances which are very context-sensitive, taking advantage of the fact that speaker and listener can interact. (Notice that the word "conversation" here refers to a language experience which

makes use of an interactive medium - not just to an experience which has that potential, such as a lecture delivered in a one-to-one situation). Frequent sequences which have been identified in conversations are question-answer and question-request for additional information-response to request-answer to original question. "Sequences" tend to be short and misunderstandings are cleared up in short order because of the interactive nature of the medium. The structure of conversations continues to be examined and formalized by Schegloff [1972], Dore [1977] and Grosz [1977], to name just a few.

The structure of stories has also recently been examined by people such as Rumelhart [1975] and the grammars generated differ greatly from those built for conversations, containing such constructs as "episode", "setting", and "theme." (See Bruce's chapter in this volume for an example of the application of story grammars). Expository texts differ in yet other ways from conversations with concepts like "thesis," "supporting evidence" and even "topic sentence" being relevant. Olson [1974] characterizes the most common current use of language in scientific and technical texts as "an extended logical essay - an assertion examined and re-examined to determine all of its implications in a single coherent text." (p. 23).

The child learning to read is clearly the victim of these differences. Even though lucky children may hear oral stories from their parents and may even be exposed to expository structure when they demand to know why boys and girls are different, their

typical oral language experiences are conversations. They are accustomed to asking and answering questions ("Where are you going?"), or relating their experiences ("Well, first I fell into the mud puddle and then..."), but are not as familiar or comfortable with other structures. These differences require the child to develop a new set of structures and procedures to comprehend stories; still other skills will be necessary for understanding history texts and lectures.

The topic of a language experience is, informally, what it is about. Children in general talk about everyday objects and situations - their pets, friends, parents, games, things that are relevant to their own lives. They usually share with their conversant a background of experiences and knowledge which makes possible references such as "The dog looked a little like Uncle Oscar." In such conversations, the speaker has a relatively complete and accurate model of the listener and thus the listener will find comprehension facilitated. Contrast this with the situation of a child reading a book. The story is likely to be about a child or animal in an unfamiliar situation. In fact, it is clear that one of the fascinations of reading is this very capacity to introduce the reader to characters and situations which might otherwise be unattainable. Yet, this source of excitement is also a potential source of problems for a young reader unused to such language experiences. In addition, a book's author certainly does not know his or her audience personally and thus can not tailor the story to their knowledge and beliefs.

This mismatch of background assumptions between cultures has been postulated as one source of difficulty for minority children learning to read. We have discovered in informal experiments that an important component of comprehending a story is understanding the characters' goals and interpreting their actions in light of these goals; without this connective tissue, the story falls apart. Understanding a story about other people requires the reader to be able to assume the characters' points of view, this "standing in another's shoes" is difficult when certain basic assumptions are not shared.

As a child gets older, the topics he or she reads about in school also tend to become more abstract; the child must progress from the dogs and friends of his or her childhood to democracy and the periodic table of chemical elements.

These shifts along the topic dimension are somewhat predicted by the shift from interactive to non-interactive language experiences. Children play a large role in the choice of topic in conversations with their parents and peers and thus it is more likely to be familiar and relevant to them. On the other hand, there are interactive language experiences, e.g. a technical conversation between two nuclear physicists - which in terms of topic, are closer to reading a text book than to participating in a typical child's conversation.

Finally we may contrast the <u>function</u> of children's conversations with that of stories. Children learn to speak initially because mastering this skill is most useful in having

one's needs filled. Just getting a parent's attention may be the first motive a child acts upon in learning to speak. Later, his or her language capabilities are more differentiated and a child can get father to pour some juice or ask mother to fix a broken toy. As children get older, the functions of conversations remain somewhat constant: to persuade, to obtain information (often relevant to some task), to express some emotion, to acquire some object or action or sometimes just to interact and maintain contact. This function is often consistent with the child's goals, especially if the child has initiated the conversation. Stories and texts, on the other hand, often have as their function to describe, to entertain, to excite, to evoke. Early reading may even submerge all of these functions in service of the goal of teaching the child certain words and letter-sound correspondences. Not only are these functions different from those normally associated with conversations, but they may not correspond very well to a child's goals. Certainly many children have asked their teachers and parents, "Why should I read?"; very few have asked, "Why should I talk?"

An additional difference between the functional fabric of children's conversations and that of stories is the duration of goals. In conversations, a single exchange may satisfy a goal and the focus will shift to another topic. In stories, we see more sustained purposes, as one of the goals of a book may be to evoke a single emotion.

These message differences are affected by medium differences in some of the same ways structure and topic are influenced. In particular, a child's active participation in a conversation makes it more likely that it will satisfy his or her goals for the interaction. A child often prevents a conversation from "sticking to the subject" by introducing another topic and another goal. In a sense, many message differences are an effect of the interactive nature of the children's language experiences and the resulting possibility of the child's affecting the course of the communication.

Figure 2 summarizes the contrasts drawn above between children's typical oral language experiences and the experience of reading a story. When these differences are combined with the medium-related distinctions discussed above, it is clear that the path from oral language comprehension to reading comprehension is full of difficult steps and that learning to decode written words to meaning is but one of them. We see that neither of the models alluded to at the beginning of this chapter (that reading and listening are either the same or completely divergent processes) makes sense in the framework developed here. What is supported in their stead is the view that each language experience involves its own set of cognitive skills, each of which is shared with many other language experiences. The dimensions identified here provide a first pass at indicating which cognitive skills are involved in a particular language experience; much more work needs to be done to specify at a more detailed level the cognitive

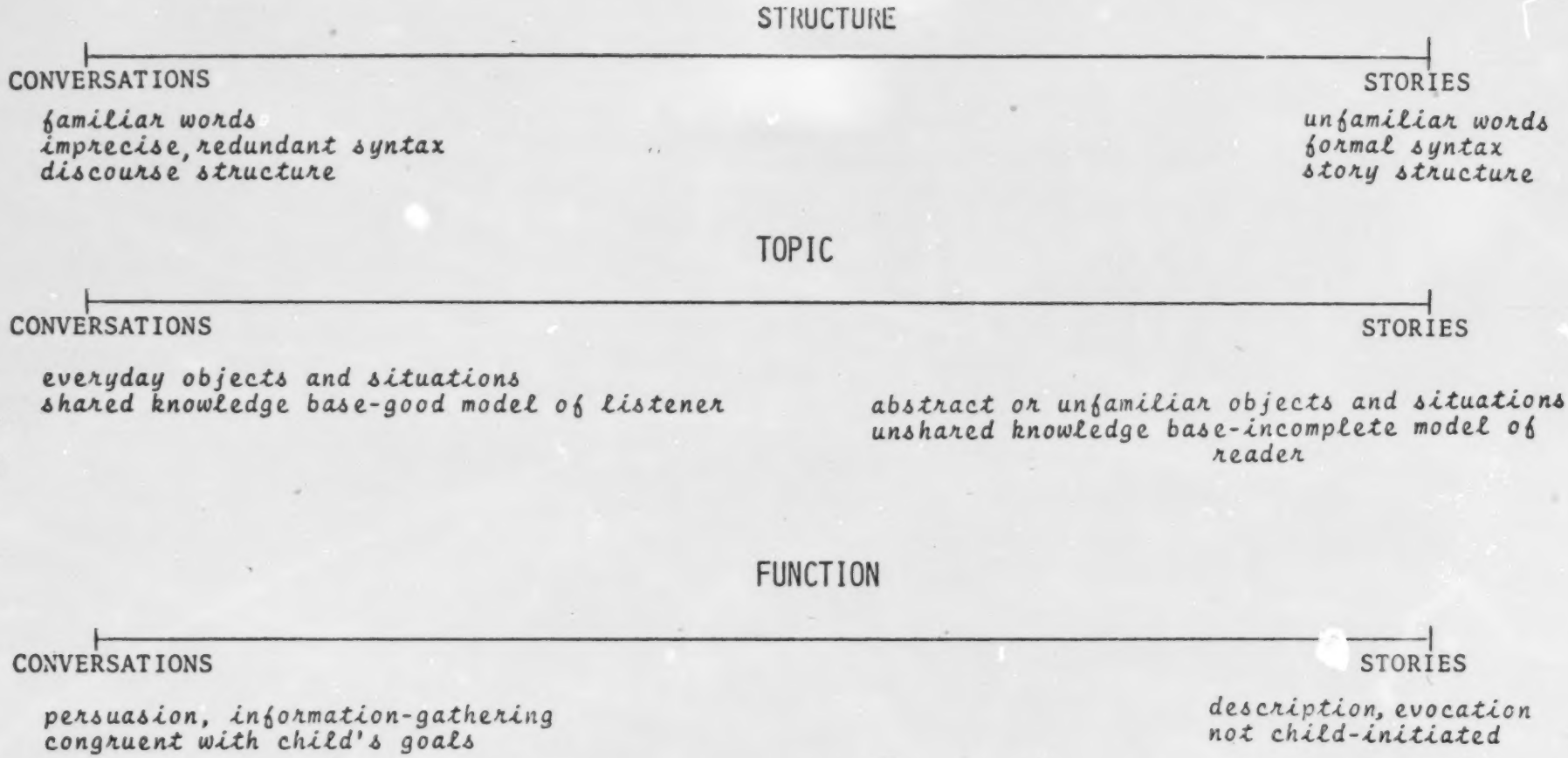


Figure 2:

A contrast of children's typical oral language experiences (conversations) and the experience of reading a story on three message-related dimensions

processes involved in understanding language in different situations.

2.4 Implications for Teaching and Research

The model presented here clearly diverges from the more traditional view of the crucial steps a child must go through in progressing from oral language comprehension to reading. One implication of the proliferation of differences is that there may be intermediate steps in teaching children to read which will require the use of some but not all the skills involved in reading. For example, two children might carry on a conversation by writing notes or by typing on linked computer terminals; this exercise preserves many of the message properties of children's conversations and even some of the medium-related properties (e.g. interaction, spatial and temporal commonality), while varying the modality. Reading aloud to children shares many medium and message-related aspects with children's reading themselves, yet differs in modality. Computer technology can be used to provide language experiences which would not be easily available otherwise. For example, in order to combine interaction with the normally non-interactive reading process, one could build a computer program which we could whimsically call "Huh?" The terminal could include a special "Huh?" key which, when pressed, would explain a specified piece of text more completely or simply, thus preserving some of the feedback properties of conversational situations. An increased understanding of the relationship between children's comprehension of conversations and stories will

be valuable as an indicator of which reading skills not transferred from the oral situation should be explicitly trained and where children might have "bugs" which derive from a too-general transfer of oral language skills. Such a model would also be useful in devising diagnostic measures for individual children to determine if their reading difficulties are reading-specific, general to both language modalities or are evidence of an even more general deficiency in problem-solving skills.

In terms of research, this model can be useful in more precisely understanding what experiments are actually investigating. The following brief survey of experiments exploring the relationship between listening and reading comprehension is included to demonstrate that work has often focused only on changes in modality, and has in general ignored the other distinctions among naturally-occurring language experiences. The relevance of these experiments to children learning reading comprehension is tenuous precisely because of this narrow focus. In section 4 I will outline an alternative approach to research in reading comprehension based on the theory developed here.

3. Experimental Investigation of the Relationship Between Oral and Written Language

The purpose of the following admittedly incomplete sample of experiments is to give the flavor of past and current experimentation in the relationship between oral and written

language comprehension. If any conclusion is supported, it is that certain aspects of oral comprehension may be prerequisites for reading comprehension; that is, certain shared skills which facilitate both types of comprehension can be tested in certain listening situations and used as predictors for certain reading situations. Sticht [1972] notes that "it is to be desired and expected that with readers beyond the learning to decode-read stage, learning by listening and learning by reading should be highly correlated." (p. 295) When the material is held constant, this intuition is generally supported. In general, though, these experiments tell us little about the skills children must acquire in learning to understand what they read.

3.1 Relevant Experiments

Experiments investigating the relationship between oral and written comprehension usually proceed in one of the following ways:

1. Comparing comprehension of the same passage presented as both text and speech or of passages produced differently (as text or speech), but presented in the same modality. Durrell [1969] found, in presenting the same material in both oral and written form to first through eighth graders, that sentence-paragraph comprehension in listening surpassed that in reading in first graders. However, in eighth graders, reading comprehension was 12% superior to listening comprehension. For Durrell, this change was evidence against a simple unitary-process hypothesis. In related work, Sticht [1972] demonstrated equal comprehension of

the same passage presented to adults as speech or text and commented that "men who score low on the Armed Forces Qualifications Test and are of marginal literacy may learn equally poorly by listening as by reading." (p. 288) Both of these experiments varied only the modality of the language experience examined. Durrell's results are most likely due to children's increasing competence in decoding and the advantage of the permanence of written text. However, neither looked at conversations or any type of interactive language experience; one wonders, for example, how Sticht's subjects would have done had they been allowed to ask questions while they were listening.

In a different approach, DeVito [1965] asked writers to describe orally topics from their published papers. These oral productions, when transcribed, were understood as well as the original passages when subjects read both. This would suggest that these particular oral passages did not make excessive use of features of oral language which would be lost in their transcription to written form or that such losses were compensated for by such features of text as its permanence. Here again we gain little insight into children's reading problems, as children do not in general read transcriptions of oral productions and in writing down an oral passage, we in fact produce a somewhat anomalous language experience.

2. Demonstrating that practiced listening skills aid reading comprehension. A form of experiment which bears most directly on the hypothesis that skills are shared between comprehension of

text and speech is exemplified by Tatham [1970]. Using "frequent" (e.g. subject-verb-object) and "infrequent" (e.g. subject-verb-manner adjective) syntactic patterns from children's oral language, she demonstrated that the frequent patterns were more easily comprehended in written form than the infrequent ones. While this type of experiment could indicate a transfer of skills from one modality to the other, it could also be the case that the frequent syntactic patterns used were frequent precisely because they were easier to comprehend in any modality, perhaps due to the semantic complexity of the concepts they represented. Studies along these lines would be more useful if they looked at other frequent patterns in children's conversations (e.g. discourse structure) and pinpointed how texts do or do not require the same skills.

3. Investigating the transfer of trained listening skills to reading. Other experiments investigate the possibility of skill transfer by actually training listening skills and then testing their manifestations in reading. Lewis [1952] trained general listening skills such as determining the main idea, noting details, and drawing conclusions and inferences; the results did not show clear transfer to reading achievement. Sticht [1972] presents a possible explanation for this failure in noting that such organizing skills are often taught in conjunction with reading but not with listening. Thus training people to "think" while listening may produce improvement in oral comprehension but may not transfer to reading if they are already proficient

readers. This insight fits easily into the framework developed above, with the thinking skills referred to here seen as a consequence of the message-related distinctions between conversations and stories. In other studies, however, reading did benefit from listening training. Jenkins [1978] reports that ten out of twelve studies he surveyed reported improvement in reading following training to improve listening skills. The effect was seen in training to recall events, ideas and details, to predict outcomes, draw conclusions or inferences, or follow directions - in other words, in thinking skills. We may integrate these seemingly contradictory results by postulating that the subjects in Lewis' study had more successfully learned "thinking" skills in connection with reading than the subjects in other studies; therefore, their improvement in listening comprehension was not accompanied by an improvement in reading comprehension.

4. Comparing listening comprehension of "good" vs. "poor" readers. Some experimenters have looked at performance differences among differently skilled readers on oral comprehension tests. Perfetti & Goldman [1976] found that less-skilled readers could recall a recent word less successfully in a listening task than more highly-skilled readers. Pike [1976] asked children in fifth and sixth grades to repeat three types of strings of words: random lists, syntactically well-formed, but semantically anomalous sentences and meaningful sentences. She found that, although the two groups performed equivalently on the random lists, better readers were more successful in their

performance on structural strings than poorer readers, indicating a greater ability on their part to make use of syntactic and semantic structure. She concludes that "the ability tested by the experimental task could be a performance-limiting factor in learning to read." (p. 8). Neither of these experiments tells us much about the relationship between listening and reading; the subjects could have read the stimulus materials instead of listening to them and the results would most likely have been similar. What they seem to indicate is that one skill important in any kind of language comprehension is the ability to structure the sentences one reads, to make a list of words into a structured, meaningful object. I would extend this thought to texts bigger than sentences; understanding a story means reading it as something other than a list of sentences.

5. Investigating what disrupts reading for "good" vs. "poor" readers. Oaken, Weiner and Cromer [1971] studied the differential effect on good and poor readers of a tape or a transcript of a poor reader reading aloud. Good readers' listening comprehension was unaffected by hearing a poor reader, although their reading comprehension decreased when they read a transcript of the tape. In contrast, poor readers' listening comprehension went down when they listened to a tape of a poor reader. This suggests that poor readers' strategies for listening comprehension are somehow disrupted by a lack of cues in the poor readers' tape (e.g. fewer prosodic cues for syntax). Such a result suggests that poor readers may rely on certain features of oral language which do not

exist in written language and have not learned strategies to compensate for this loss.

6. Considering the relationship of both oral and written language comprehension to independent measures. Sticht [1972] discovered that reading and listening comprehension scores were equally good predictors of job performance in non-reading jobs. He concludes from this and related statistics that "the measurement of comprehension by reading includes the measurement of comprehension by language (by listening in the present case)." (p. 292) Again, this experiment looked only at a change in modality: the material presented and the manner in which it was presented do not differ otherwise. The not-so-surprising conclusion to be derived from this experiment is that comprehension is affected much more by factors other than modality, by skills related to other aspects of the medium and the message.

2.2 Problems with these experiments

Several considerations make it difficult to interpret these experimental results or to pinpoint their relevance to children learning to read.

1. The materials themselves - In the bulk of the experiments described above, materials differ only on the modality of presentation. All of the other dimensions of the taxonomy developed in this paper remain the same. In addition, several experiments use anomalous language experiences such as listening to a passage which was to be read or reading a talk which was

meant to be spoken. We hardly ever encounter these in non-experimental situations, and they are certainly not comparable to reading text or participating in a conversation. Thus, many of the experiments which purport to compare comprehension across these modes are difficult to interpret. Those experiments which only test comprehension sentences in isolation may be less sensitive to this criticism, but they suffer from yet another problem - the tenuous relationship between understanding isolated sentences and comprehending entire written or oral passages.

2. Presentation conditions - Two of the striking differences between oral and written language are the speed at which they may be presented and the permanence of the display. The normal rate of reading is commonly 2-3 times as that of speech. Some experiments attempt to pace subjects' reading or compress speech in order to equalize these variables, but it is unclear what other effects these variations have. Similarly, some experiments present only a small portion of the written input at a time to simulate the non-retrievability of speech. While this method may make the two comprehension situations more comparable, it destroys a difference between oral and written language which might be crucial in teaching children to read.

3. Subject characteristics and comprehension measures - Danks [1974] points out that the use of subjects of different ages in different experiments makes comparison difficult as we know little about the developmental aspects of either reading or oral language comprehension. In addition, he points out several difficulties

with comprehension measures. He notes that free-recall and question-answering techniques may be hard to compare, and that the necessity of delay before comprehension is tested in both of these approaches may confound results. Comprehension measures which are simultaneous with processing may avoid the delay problems, but disturb the comprehension process itself.

4. Methodological fallacies - The discovery of a factor (e.g. impaired listening comprehension) which occurs more frequently among poor readers than good readers cannot be interpreted as indicating that the factor causes poor reading. First, poor readers tend to score lower on a wide variety of tasks and one can not determine which factors are intimately related to reading. Second, a causal relation is never established simply by a correlation; more complex analyses are necessary.

5. The relationship of the comprehension process to experimental results - It is always difficult to infer a process from looking at its output. Even if we were to consistently obtain the same results on comprehension tasks in both oral and written language, we would have no proof that the comprehension processes were the same. Even showing that a component (e.g. syntactic analysis) is operational in both modes of language comprehension does not specify the relationship of that component to the rest of the process: when it is activated, what its input is, and how much time, space and attention are devoted to its operation.

6. Error analysis - Few of the experimenters mentioned above looked carefully at their subjects' errors; they did not follow Goodman [1973], who built his theory primarily on "miscue" analysis. One exception among the research reported here is Pike [1976]; she noted that, in the string memory task described above, poorer readers seemed to be using a strategy appropriate for serial-list tasks even for the structured strings. Their responses had a list-like quality and their errors were most often omissions. The better readers tended to transpose or substitute words; they would generally answer using a normal intonation pattern which indicated they were attempting to use syntactic and semantic structure to remember the words. This type of data suggests that more complete, even if therefore less quantitative, analyses of experimental results might provide more insight.

In some sense, though, all these experiments miss the point when it comes to children learning to read. While it may be true that many of the same processes come into play in the comprehension of the same material presented visually or aurally, children's early conversational language and the books they read can hardly be considered the same material. By focusing on the modality of language experiences at the expense of other characteristics, these experiments have missed some of the crucial differences between conversational experiences and reading stories. This is not a criticism of these experiments <u>per se</u>, for their purpose was in fact to investigate modality isolated from other factors. What is wrong is the extrapolation of these

findings to the equation of reading comprehension with the sum of oral language comprehension + decoding and to the concomitant emphasis on teaching decoding. In order to better understand reading comprehension, we need to look at material which differs in terms of other dimensions-structure of the message, interaction, topic, to name a few. The following section is just the beginning of a potential investigation of two of these dimensions (without any claim that they are somehow most important or primary): temporal and spatial commonality.

4. Understanding of Deictic Terms in Oral and Written Language

The effect of the permanence of text on certain terms has been discussed before by linguists. Olson [1974] notes: "Written materials are ordinarily portable and preserved over time; hence the writer must use language in such a way as to permit the text to preserve its meaning across space and time." (p. 15) This shift in the text poses new problems for a child, whose previous experience has been with language experiences in which speaker and listener share spatial and temporal contexts. This section provides a preliminary look at these deictic terms, as they are called by linguists, and considers how they may be a source of confusion for children learning to read.

4.1 Definitions of Deixis

In general, deictic terms are those whose interpretation relies upon the context of the utterance. Fillmore [1971] gives an intuitive feel for context-sensitive terms with the following

example: Imagine finding a bottle afloat in the ocean holding a piece of paper with these words: "Meet me here at noon tomorrow with a stick about this big." Clearly, no one could fill that request without more information.

Weinrich [1963] divides deixis into 4 categories:

1. Person deixis: terms whose interpretation requires knowledge of the speaker and/or hearer. The most common words in this category are first- and second-person pronouns.

May I hold hands with you?

Have you seen my octopus?

* * *

2. Time deixis: terms whose meaning depends on the time at which the utterance occurred. Time adverbs such as "now" and time phrases such as "a week ago" fall into this category. Tense indicators on verbs may also be considered examples of time deixis.

Now you see it, now you don't. (Note the two different uses of "now" in this sentence.)

John came to stay last Sunday, but I'm going to ask him to leave tomorrow.

* * *

3. Place deixis: terms which depend on the spatial position of the speaker and/or hearer. The adverbs "here" and "there" as well as certain motion verbs (e.g. "come") are in this category.

Is Johnny there? (refers to the hearer's position)

Put that knife over here. (refers to the speaker's position)

* * *

4. Discourse deixis: terms which depend on the previous discourse for their interpretation. Anaphoric reference may be included here, as well as such phrases as "in the next chapter." (See Nash-Webber [1978] for further discussion of anaphora.)

I drove the car to the bus station and left it there.

In the next paragraph, you will read about social deixis.

* * *

Fillmore [1971] adds a fifth category.

5. Social deixis: terms which are sensitive to the social relationships between the participants in the conversation. Examples of such words are more common in Japanese, where many pronouns include an assumption about the social class of the people referred to. In French, the second-person pronouns "tu" and "vous" are differentially used depending on the relationship between the conversants.

4.2 Experimental Work on the Understanding of Deictic Terms

Few experiments have been done on the effect of deictic terms in language understanding. Harris and Brewer [1973] demonstrated that subjects' recall of sentences such as "All California had felt the earthquake" was frequently "All California felt the earthquake", suggesting that the lack of specific reference to the implicit second time reference (before which California felt the earthquake) rendered the "had" meaningless and thus prone to

omission. Similar experiments in Brewer and Harris [1974] indicated the same phenomenon with other deictic elements not anchored in the experimental context. Such experiments could be explored to provide more insight on the effect of context on the interpretation of deictic terms.

Not much work has been done either concerning children's acquisition of the ability to produce or understand deictic terms. Lyons [1975] claims, on the basis of linguistic arguments, that "the grammatical structure and interpretation of referring expressions ... can be accounted for in principle on the basis of a prior understanding of the deictic function of demonstrative pronouns and adverbs in what might be loosely described as concrete or practical situations." Although Lyons makes no reference to actual observations of children, he recognizes the primacy of deixis in a child's development of speaking and listening skills. One developmental point he makes is that a child must learn the distinction between referring to a place and referring to an entity, e.g. the difference between "That's the park" and "There's the park."

Fillmore [1971] reports an experiment by Herb Clark in which preschool children gave each other instructions to assemble blocks without being able to see one another. Clark recorded the following conversation:

"Put this block on top of that one."

"You mean this one."

"Yes."

These children did not yet understand the deictic nature of "this" and "that"; the assumption is that they were still too egocentric to realize the discrepancy in the conversation.

In some related experiments, Krauss and Glucksberg [1977] showed that children often do not appreciate the fact that the person they are speaking to does not share their knowledge and assumptions. The experimenters separated children by a screen, then asked the speaker to describe the design on blocks as he or she stacked them. The listener's task was to select the correct blocks from a randomly ordered collection and stack them in the same order. Children through the fifth grade gave noncommunicative descriptions like "My Daddy's shirt" which were usually misunderstood. Adults, of course, made up suitable descriptions and had no trouble with the task.

Tanz [1976] found that the order of acquisition in speech of deictic terms by a group of 40 children between the ages of two and six was as follows: personal pronouns, in back of/in front of, demonstratives and locatives (this/that, here/there), deictic verbs (come/go, bring/take). Some of her techniques might be extensible to research on reading. Tanz notes the connection between deixis and what psychologists have commonly called egocentrism: "Children's use of deictic terms without sufficient linguistic or extra-linguistic anchoring is one of the clearest symptoms of cognitive egocentrism to be visible in ordinary interactions." (p. 228) She also hints that the kinds of cognitive processes inherent in a child's decentering may pave the way for a

child to stand in other people's shoes and see the world from their personal and motivational point of view -- a crucial skill in understanding stories.

4.3 Deictic Terms in Text

What happens to deictic terms in text? For one thing, they are most likely used less frequently. Fillmore [1971] distinguishes three types of uses of deictic place terms: gestural (I want you to put it there.), symbolic (Is Johnny there?) and anaphoric (I drove the car to the lot and left it there.) Only the third really translates easily into the written situation. The other two make sense only as quoted utterances, that is, as written records of conversations.

Let us examine one example of such a use of deixis in text.

Sally said to Jill, "Come to my house tomorrow."

Two words in this sentence have deictic content: "My" and "tomorrow." If a child were to hear the quoted sentence, he or she would understand that "my" referred to the speaker and "tomorrow" referred to the day after the utterance. In reading this sentence (or in hearing it read), he or she must interpret "my" as "Sally's" and "tomorrow" as the day after Sally's remark to Jill. For a child, this changing of context may not be easy. Similarly, if a child read "'I want you to put it there,' said Jack, pointing to the card table," he or she would have to realize the correspondence between "there" and "the card table," rather than the common correspondence between "there" and a place in their own spatial context. Not all deictic references in texts are quoted conversations. For example,

John looked to the left.

Again, a child must be able to switch contexts in reading this sentence to realize that John's left, not the reader's left, is indicated.

Of course, each of the above sentences could have been spoken. My claim, though, is that such sentences are much more common in text than in speech and further that they might provide some difficulty for children in the transition from speech to reading comprehension. To support this claim, more research is necessary into children's use and understanding of deictic terms in speech, the occurrence of deixis in children's books and children's understanding of these terms when they read. As a start, here are some examples of the uses of deixis in My First Picture Dictionary [Greet, 1970]:

1. You wear a glove on your hand.

2. You blow air into a balloon.

3. (Accompanied by a picture of a boy watching a sunrise)
The sun is rising.
Dan was up when it rose yesterday.
It has risen later every day.

4. (Accompanied by a picture of a mother, a girl looking at her, a girl holding a doll and a boy holding an airplane)
Mother is giving me a birthday present.
She gave my sister one last month.
She has given my brother his present.

While it is true that dictionary definitions are not the most natural form of text, children certainly read and hopefully understand them. An investigation into just how much and how they do understand should provide some insight into the general relationship between the comprehension of oral and written language.

In sum, a new approach to investigating the contribution of children's oral language comprehension skills to their learning to read has been proposed here. It rejects the traditional equation which claims that skilled reading is the sum of oral comprehension and decoding skills for two reasons: 1) It is impossible to compare oral and written language in general without further specifying the medium and message of the language experience. 2) The relevant experiences for children learning to read are conversations (oral) and stories (written), and there are many more differences between these than the application of decoding skills could overcome. Attempting to dimensionalize the distinctions among language experiences leads us to a scrutiny of linguistic factors such as deictic terms, to a new experimental approach and, hopefully, to better ways to teach children how to read.

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